Appendix A

Standards by Grade and Objective:

Grade 4:

1. Students will be able to Calculate & layout the outline a full sized mock condor release cage based on scale drawings and figures.

Math: Number Sense
1.0 Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions.
Students use the concepts of negative numbers:
1.6 Write tenths and hundredths in decimal and fraction notations and know the fraction and decimal equivalents for halves and fourths (e.g., 1/2 = 0.5 or .50; 7/4 = 1 3/4 = 1.75).
3.0 Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among the operations:
3.1 Demonstrate an understanding of, and the ability to use, standard algorithms for the addition and subtraction of multidigit numbers.
3.2 Demonstrate an understanding of, and the ability to use, standard algorithms for multiplying a multidigit number by a two-digit number and for dividing a multidigit number by a one-digit number; use relationships between them to simplify computations and to check results.
3.3 Solve problems involving multiplication of multidigit numbers by two-digit numbers.

Math: Algebra and Functions
1.0 Students use and interpret variables, mathematical symbols, and properties to write and simplify expressions and sentences:
1.4 Use and interpret formulas (e.g., area = length ´ width or $A = lw$) to answer questions about quantities and their relationships.

Math: Measurement and Geometry
Students understand perimeter and area:
1.1 Measure the area of rectangular shapes by using appropriate units, such as square centimeter (cm^2), square meter (m^2), square kilometer (km^2), square inch (in^2), square yard (yd^2), or square mile (mi^2).

Math: Mathematical Reasoning
Students move beyond a particular problem by generalizing to other situations:
3.3 Develop generalizations of the results obtained and apply them in other circumstances.

Grade 4 (cont.):

2. Students will be able to recognize that some fluctuations in wildlife populations are natural because ecosystems undergo constant change. As demonstrated by the ensuing discussion.

Science: Life Science
2. All organisms need energy and matter to live and grow. As a basis for understanding this concept:
b. *Students know* producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.
c. *Students know* decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.
3. Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:
a. *Students know* ecosystems can be characterized by their living and nonliving components.
b. *Students know* that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.

Math: Statistics, Data Analysis, and Probability
1.0 Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings:
1.1 Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts.

3. Students will understand the Condor Recovery Program and why Pinnacles National Monument was chosen as a site. This will be demonstrated by the discussion conducted during their walk.

Science: Life Science
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b. *Students know* producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.
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Grade 4, Objective 3 (cont.):

English-Language Arts: Listening and Speaking
1.0. Listening and Speaking Strategies
Students listen critically and respond appropriately to oral communication
Comprehension
1.1 Ask thoughtful questions and respond to relevant questions with appropriate elaboration in oral settings.
1.2 Summarize major ideas and supporting evidence presented in spoken messages and formal presentations.
1.3 Identify how language usages (e.g., sayings, expressions) reflect regions and cultures.

Grade 5:

1. Students will be able to Calculate & layout the outline a full sized mock condor release cage based on scale drawings and figures.

Math: Number Sense
2.0 Students perform calculations and solve problems involving addition, subtraction, and simple multiplication and division of fractions and decimals:
2.1 Add, subtract, multiply, and divide with decimals; add with negative integers; subtract positive integers from negative integers; and verify the reasonableness of the results.
2.2 Demonstrate proficiency with division, including division with positive decimals and long division with multidigit divisors.
2.3 Solve simple problems, including ones arising in concrete situations, involving the addition and subtraction of fractions and mixed numbers (like and unlike denominators of 20 or less), and express answers in the simplest form.
2.4 Understand the concept of multiplication and division of fractions.
2.5 Compute and perform simple multiplication and division of fractions and apply these procedures to solving problems.

Math: Measurement and Geometry
1.0 Students understand and compute the volumes and areas of simple objects:
1.3 Understand the concept of volume and use the appropriate units in common measuring systems (i.e., cubic centimeter [cm 3], cubic meter [m3], cubic inch [in 3], cubic yard [yd3]) to compute the volume of rectangular solids.
1.4 Differentiate between, and use appropriate units of measures for, two- and three-dimensional objects (i.e., find the perimeter, area, volume).
2.0 Students identify, describe, and classify the properties of, and the relation-ships between, plane and solid geometric figures:
2.1 Measure, identify, and draw angles, perpendicular and parallel lines, rectangles, and triangles by using appropriate tools (e.g., straightedge, ruler, compass, protractor, drawing software).

Grade 5, Objective 1 (cont.):

Math: Mathematical Reasoning
3.0 Students move beyond a particular problem by generalizing to other situations:
3.3 Develop generalizations of the results obtained and apply them in other circumstances.

3. Students will understand why Pinnacles National Monument was chosen for a Condor release site. This will be demonstrated by the discussion conducted during their walk.

English-Language Arts: Listening and Speaking
1.0. Listening and Speaking Strategies
Students deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience. They evaluate the content of oral communication.
Comprehension
1.1 Ask questions that seek information not already discussed.
1.2 Interpret a speaker's verbal and nonverbal messages, purposes, and perspectives.

Grade 6:

1. Students will be able to Calculate & layout the outline a full sized mock condor release cage based on scale drawings and figures.

Math: Number Sense
1.0 Students compare and order positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages:
1.2 Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (a/b, a to b, $a:b$).

Math: Algebra & Functions
2.0 Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions:
2.1 Convert one unit of measurement to another (e.g., from feet to miles, from centimeters to inches).

Math: Mathematical Reasoning
3.0 Students move beyond a particular problem by generalizing to other situations:
3.3 Develop generalizations of the results obtained and the strategies used and apply them in new problem situations.

Grade 6, (cont.):

2. Students will be able to recognize that some fluctuations in wildlife populations are natural because ecosystems undergo constant change. As demonstrated by the ensuing discussion.

Science: Life Science
5. Organisms in ecosystems exchange energy and nutrients among themselves and with the environment. As a basis for understanding this concept:
b. *Students know* matter is transferred over time from one organism to others in the food web and between organisms and the physical environment.
c. *Students know* populations of organisms can be categorized by the functions they serve in an ecosystem.
e. *Students know* the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.

Math: Statistics, Data Analysis, and Probability
2.0 Students use data samples of a population and describe the characteristics and limitations of the samples:
2.5 Identify claims based on statistical data and, in simple cases, evaluate the validity of the claims.

3. Students will understand why Pinnacles National Monument was chosen for a Condor release site. This will be demonstrated by the discussion conducted during their walk.

Science: Life Science
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b. *Students know* matter is transferred over time from one organism to others in the food web and between organisms and the physical environment.
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e. *Students know* the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.

English-Language Arts: Listening and Speaking
1.0. Listening and Speaking Strategies
Students deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience. They evaluate the content of oral communication.

Grade 6, Objective 3, English-Language Arts: Listening and Speaking (cont.):

Comprehension
1.1 Relate the speaker's verbal communication (e.g., word choice, pitch, feeling, tone) to the nonverbal message (e.g., posture, gesture).
1.2 Identify the tone, mood, and emotion conveyed in the oral communication.

Grade 7:

1. Students will be able to Calculate & layout the outline a full sized mock condor release cage based on scale drawings and figures.

Math: Number Sense
1.0 Students know the properties of, and compute with, rational numbers expressed in a variety of forms:
1.3 Convert fractions to decimals and percents and use these representations in estimations, computations, and applications.

Math: Measurement and Geometry
1.0 Students choose appropriate units of measure and use ratios to convert within and between measurement systems to solve problems:
1.1 Compare weights, capacities, geometric measures, times, and temperatures within and between measurement systems (e.g., miles per hour and feet per second, cubic inches to cubic centimeters).
1.2 Construct and read drawings and models made to scale.
2.0 Students compute the perimeter, area, and volume of common geometric objects and use the results to find measures of less common objects. They know how perimeter, area, and volume are affected by changes of scale:
2.1 Use formulas routinely for finding the perimeter and area of basic two-dimensional figures and the surface area and volume of basic three-dimensional figures, including rectangles, parallelograms, trapezoids, squares, triangles, circles, prisms, and cylinders.

Math: Mathematical Reasoning
3.0 Students determine a solution is complete and move beyond a particular problem by generalizing to other situations:
3.3 Develop generalizations of the results obtained and the strategies used and apply them to new problem situations.

Grade 7 (cont.):

3. Students will understand why Pinnacles National Monument was chosen for a Condor release site. This will be demonstrated by the discussion conducted during their walk.

English-Language Arts: Listening and Speaking
1.0. Listening and Speaking Strategies
Deliver focused, coherent presentations that convey ideas clearly and relate to the background and interests of the audience. Students evaluate the content of oral communication.
Comprehension
1.1 Ask probing questions to elicit information, including evidence to support the speaker's claims and conclusions.
1.2 Determine the speaker's attitude toward the subject.
1.3 Respond to persuasive messages with questions, challenges, or affirmations.

Grades 9 to 12:

2. Students will be able to recognize that some fluctuations in wildlife populations are natural because ecosystems undergo constant change. As demonstrated by the ensuing discussion.

Science: Ecology
6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept:
a. *Students know* biodiversity is the sum total of different kinds of organisms and is affected by alterations of habitats.
b. *Students know* how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of nonnative species, or changes in population size.
c. *Students know* how fluctuations in population size in an ecosystem are determined by the relative rates of birth, immigration, emigration, and death.
e. *Students know* a vital part of an ecosystem is the stability of its producers and decomposers.

Science: Evolution
7. The frequency of an allele in a gene pool of a population depends on many factors and may be stable or unstable over time. As a basis for understanding this concept:
d. *Students know* variation within a species increases the likelihood that at least some members of a species will survive under changed environmental conditions.

Grades 9 to 12 (cont.):

3. Students will understand why Pinnacles National Monument was chosen for a Condor release site. This will be demonstrated by the discussion conducted during their walk.

Science: Ecology
6. Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept:
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Science: Evolution
7. The frequency of an allele in a gene pool of a population depends on many factors and may be stable or unstable over time. As a basis for understanding this concept:
d. *Students know* variation within a species increases the likelihood that at least some members of a species will survive under changed environmental conditions.

English-Language Arts: Listening and Speaking
1.0 Listening and Speaking Strategies
Students formulate adroit judgments about oral communication. They deliver focused and coherent presentations of their own that convey clear and distinct perspectives and solid reasoning. They use gestures, tone, and vocabulary tailored to the audience and purpose.
Comprehension
1.1 Formulate judgments about the ideas under discussion and support those judgments with convincing evidence.